

(PCT Article 36 and Rule 70)

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/052828

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-14 \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1-15 \_\_\_\_\_ received by this Authority on 16.03.2006 with letter of 14.03.2006
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the drawings:
- sheets \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1.	Statement		
	Novelty (N)	Claims <u>1-15</u>	YES
		Claims _____	NO
	Inventive step (IS)	Claims <u>1-15</u>	YES
		Claims _____	NO
	Industrial applicability (IA)	Claims <u>1-15</u>	YES
		Claims _____	NO
2.	Citations and explanations (Rule 70.7)		
	<p><b>1. Amendments:</b></p> <p>The new claim 1 corresponds to a combination of the originally filed claims 1 and 8.</p> <p>This amendment thus meets the requirements of PCT Article 34(2) (b).</p>		
	<p><b>2. Disclosures</b></p> <p>D1: US-A-4 148 204 (DOTZER RICHARD ET AL) 10 April 1979 (1979-04-10)</p> <p>D2: US-A-4 236 940 (MANTY ET AL) 2 December 1980 (1980-12-02)</p> <p>D3: EP-A-0 184 985 (ELTECH SYSTEMS CORPORATION) 18 June 1986 (1986-06-18)</p> <p>D4: US-A-3 560 274 (HORACE R. OGDEN) 2 February 1971 (1971-02-02)</p> <p>D5: WO 99/38642 A (CLAD METALS LLC; GROLL, WILLIAM, A) 5 August 1999</p> <p>D6: EP-A-0 289 432 (CEGEDUR SOCIETE DE TRANSFORMATION DE L'ALUMINIUM PECHINEY) 2 November 1988 (1988-11-02)</p> <p>D7: DE 36 22 032 A1 (FERDINAND MENRAD GMBH &amp; CO KG) 21</p>		

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	January 1988
D8:	US-A-3 755 090 (JACKSON A, GB ET AL) 28 August 1973 (1973-08-28)
D9:	US-A-5 196 075 (JANSEN ET AL) 23 March 1993 (1993-03-23)
D10:	US-A-4 655 884 (HILLS ET AL) 7 April 1987 (1987-04-07)
D11:	US-A-5 679 181 (OHMURA ET AL) 21 October 1997 (1997-10-21)
D12:	GB-A-2 188 942 (ROLLS-ROYCE PLC) 14 October 1987 (1987-10-14)
D13:	US-A-3 957 594 (GRELLET ET AL) 18 Mai 1976 (1976-05-18)
D14:	US-A-2 044 742 (ARMSTRONG PERCY A. E. ET AL) 16 June 1936
2.1	Document D1 discloses a process for producing coated workpieces comprising the following steps: galvanic deposition of Al, Cd, In or Zn, i.e. no alloys, and thermal treatment.
2.2	Documents D2 and D4 disclose processes for producing coated titanium or titanium alloy workpieces comprising the following steps: galvanic deposition of chromium, i.e. no alloys, and thermal treatment.
2.3	Document D3 discloses a process for producing coated nickel, cobalt and/or iron workpieces comprising the following steps: galvanic deposition of a titanium-aluminium alloy, and thermal treatment.

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2.4	Document D5 discloses a process for producing coated copper, steel, aluminium or titanium workpieces comprising the following steps: galvanic deposition of pure aluminium, i.e. no alloys, and thermal treatment.
2.5	Document D6 discloses a process for producing coated aluminium workpieces comprising the following steps: galvanic deposition of nickel, i.e. no alloys, and thermal treatment.
2.6	Document D7 discloses a process for producing coated titanium, titanium alloy or niobium workpieces comprising the following steps: galvanic deposition of nickel, i.e. no alloys, and thermal treatment.
2.7	Documents D8-D14 do not describe the application of an aluminium-magnesium and/or aluminium-tin alloy to a substrate, and should therefore not be considered relevant.
3.	<b>Novelty:</b>
3.1	The subject matter of claim 1 is novel under PCT Article 33(1) and 33(2) over the disclosures of D1-D14 because none of the citations discloses a process for producing workpieces with galvanic deposition of an aluminium-tin and/or aluminium-magnesium alloy, as in claim 1.

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3.2	<p>Dependent claims 2-13 should also be considered novel.</p>
3.3	<p>The workpieces as per claims 14 and 15, which are produced by the process as per claim 1, should also be considered novel.</p>
<b>4.</b>	<b><i>Inventive step</i></b>
4.1	<p>Document D1, which is considered to represent the closest prior art, discloses (cf. 1.1) a production process from which the subject matter of claim 1 differs in that an aluminium-tin and/or aluminium-magnesium alloy is galvanically deposited.</p> <p>The present invention can therefore be considered to address the problem of producing workpieces by a process which achieves higher long-term resistance to thermal stresses, i.e. higher thermal stability against oxidation, in particular in a range from 750°C to 1000°C (paragraph 39 of the application).</p> <p>These galvanically applied aluminium alloys, which are diffused into the (titanium) substrate, have hitherto not been considered, and the problem could thus not be successfully solved.</p> <p>For this reason, the subject matter of claim 1 is considered inventive under PCT Article 33(1) and 33(3).</p>

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4.2	The subject matter of dependent claims 2-13 should also be considered inventive.
4.3	The workpiece as per claims 14 and 15, produced by this process, is also considered inventive because it exhibits hitherto unattainable properties, including outstanding long-term resistance to thermal stresses, i.e. resistance to oxidation and other corrosive, high-temperature influences.
5.	<b><i>Additional observations:</i></b>  The description, in particular pages 4 and 5, should be brought into line with the new claims.